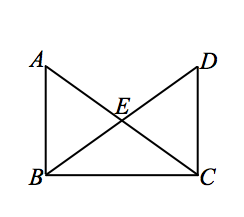
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Lesson 26: Triangle Congruency Proofs—Part I

**Student Outcomes**

* Students complete proofs requiring a synthesis of the skills learned in the last four lessons.

Classwork



1. Given: .

bisects , bisects

Prove:

, Given

, Def. of perpendicular

bisects , bisects Given

, Def. of bisect

Transitive Property of = (Substitution)

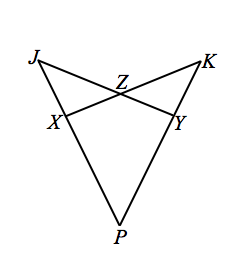
Def. of congruent angles

Given

are vertical angles Definition of Vert.

Vert. Theorem

ASA



1. Given:

Prove: .

Given

are vertical angles Definition of Vert.

Vert.

SAA (AAS)

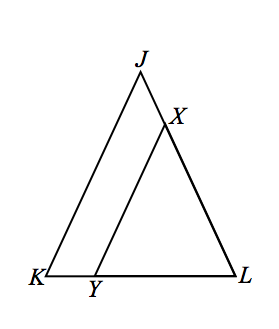
Corresponding Parts of Congruent Triangles are Congruent (CPCTC)

Reflexive Property

When congruent segments are added to congruent segments, the sums are conguent

SAA

CPCTC



1. Given:

Prove:

Given

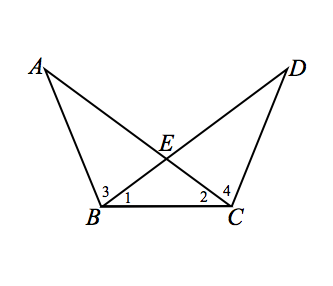
Base in isos. are congruent

Given

Corr. are congruent since

Substitution/Transitive

Base converse

1. Given:

Prove: .

Given

Base converse

Given

are vertical angles Definition of Vert.

Vert. Theorem

ASA

CPCTC

Reflexive Property

SAA

CPCTC

OR

Given

Base converse

Given

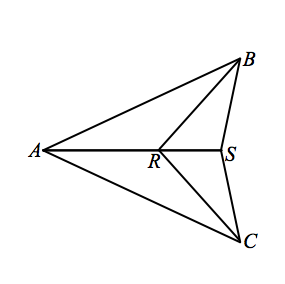
are vertical angles Definition of Vert.

Vert. Theorem

ASA

CPCTC

If congruent segments are added to congruent segments, then their sums are congruent

1. Given:

Prove:

, Given

Reflexive Property

SSS

CPCTC

form a linear pair Definition of a linear pair

form a linear pair

are supplementary Linear Pair Theorem

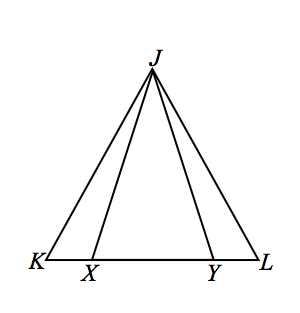
are supplementary

supplements of congruent angles are congruent

Reflexive Property

SAS

CPCTC

1. Given:

Prove: .

Given

Isosceles Triangle Theorem

form a linear pair Definition of Linear Pair

form a linear pair

are supplementary Linear Pair Theorem

are supplementary

Supplements to congruent angles are congruent

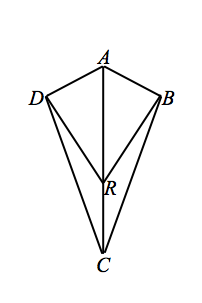
Given

Isosceles Triangle Theorem

SAA

CPCTC

1. Given: ,



Prove:

, Given

Definition of perpendicular lines

Definition of right triangle

(Leg) Given

(Hypotenuse) Reflexive Property

Hypotenuse Leg (HL)

Corr. s of (CPCFC/CPCTC)

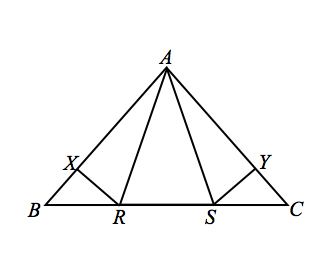
Supplements of congruent angles are congruent

Corr. sides of (CPCFC)

Reflexive Property

SAS

Corr. s of (CPCFC)

1. Given:

Prove:

(S) Given

Base s of isos.

are a Linear Pair

are Supplementary

(A) Supplements of congruent angles are congruent

(S) Given

SAS

(A) Corr. s of (CPCFC/CPCTC)

Given

are right angles Def. of perpendicular

(A) If two angles are right angles then they are congruent

SAA

Corr. sides of (CPCFC)